UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

FCX SOLAR, LLC,	:	
	:	
Plaintiff,	:	
	:	
v.	:	Case No. 1:21-cv-03556-RA
	:	
FTC SOLAR, INC.,	:	
	:	
Defendant.	:	
	:	
FCX SOLAR, LLC,	:	
	:	
Plaintiff,	:	
	:	
v.	:	Case No. 1:21-cv-08766-RA
	:	
FTC SOLAR, INC.,	:	
	:	
Defendant.	:	
	:	

DEFENDANT FTC SOLAR, INC.'S
REBUTTAL CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

In this case, FCX Solar LLC, Inc. ("FCX") alleges that FTC Solar, Inc. ("FTC") has infringed a number of claims of U.S. Patent No. 10,903,782 (Ex. 1, "the '782 Patent").[1] To secure issuance of these claims by the United States Patent and Trademark Office ("PTO"), FCX was forced to narrow its claims to include the specific damper valve configuration depicted in Figure 2 of the '782 Patent. FTC's proposed constructions should be adopted because they properly tether the scope of the asserted claims to this alleged invention for which FCX was awarded patent protection. By contrast, FCX seeks to improperly expand the scope of its patent rights beyond the invention described in the '782 Patent.

FTC also asks the Court to find FCX's claims invalid as indefinite under 35 U.S.C. § 112(b). Using the term "damping ratio" to describe a damper—as the claims of the '782 Patent do—yields a nonsensical result. FCX could have easily avoided this problem by choosing different language to describe its damper. Instead, FCX asks the Court to fix this problem by effectively rewriting the claims. But FCX's proposed fix contradicts the plain meaning of the claim language and merely injects additional ambiguity into the claims in violation of § 112(b).

II. BACKGROUND

A. The '782 Patent

The '782 Patent issued on January 26, 2021, and claims priority to February 13, 2018. The '782 patent is directed to a "solar tracker system for solar panels" containing three primary components: (1) a collection of photovoltaic modules (solar panels); (2) a base supporting the collection of photovoltaic modules; and (3) a damper coupled between the collection of photovoltaic modules and the base. These components are shown in Figure 1:

[1] Exhibits 1–7 are attached to the Declaration of Joseph J. Gribbin filed with this Rebuttal Brief.

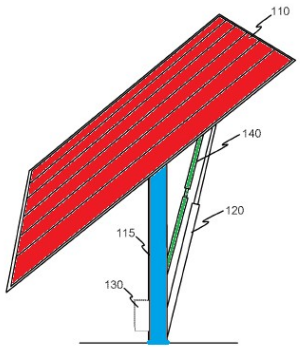
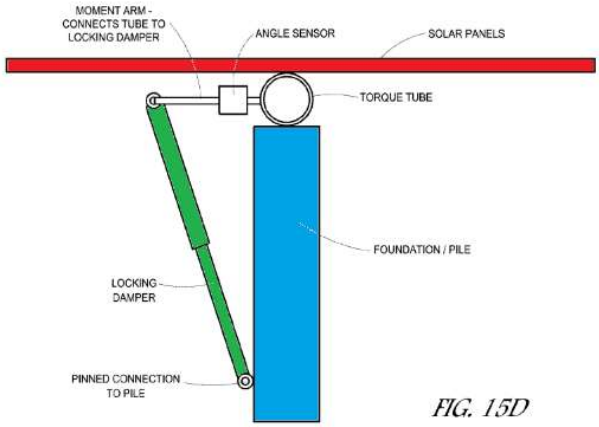


FIG. 1

Reference No.	Component
110	Photovoltaic modules
115	Base
120	Actuator
130	Controller
140	Damper

None of these components were new when FCX filed its patent application. Solar-tracker systems having photovoltaic modules, a base, and a damper were well known in the prior art before 2018. *See* Ex. 2 at 2–4 (FCX admitting that prior-art solar trackers included photovoltaic modules, bases, and dampers).

In fact, FCX disclosed numerous prior-art references to the PTO that showed solar tracker systems with these standard components, including the following:



See Ex. 3 at Fig. 15D; *see also* Ex. 4 at 107; Ex. 5 at Fig. 12B.

The purported difference between the prior art and the system described and claimed in the '782 Patent relates to the function and the internal design of a specific damper. According to the

'782 Patent, this damper passively transitions from a first "damping ratio"[2] to a second "damping ratio," when the PV modules move at different speeds. To achieve this functionality, FCX disclosed a specific damper design: the damper piston has a "first port" and a "second port," and a "valve, configured to passively open or close the second port." This damper is shown in Figures 2B and 2C of the '782 Patent, which show cross-sectional views of the damper:

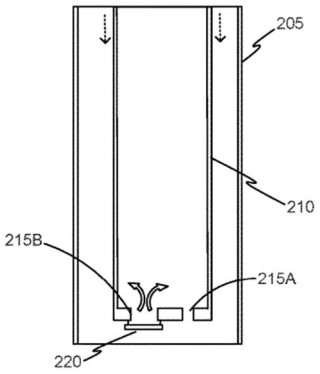


FIG. 2B

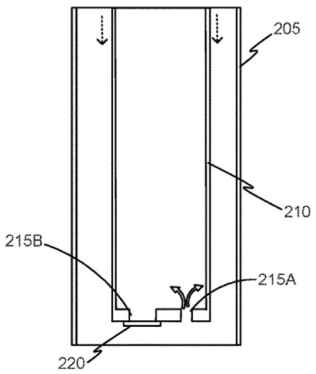


FIG. 2C

As shown in Figure 2B, the damper has two ports (215A and 215B) and the valve (220) controls one of these ports (215B). Ex. 1 at Figs. 2B and 2C; *id.* at 3:60–4:2. The valve (220) is open "[w]hen the damper piston 210 moves through the fluid at low speed," which allows fluid to flow through port 215B freely and "provide[s] little resistance to the movement of the piston." *Id.* at 4:2–8. And as shown in Figure 2C, the valve (220) is "pushed closed" over port 215B when the damper piston moves "[a]t higher speeds," so that fluid can only flow through the other port (215A), which "increases the effective damping ratio of the damper[.]" *Id.* at 4:10–19. This specific two-ports-and-a-valve damper design is expressly included as a requirement in all the asserted claims.

[2] The parties agree that "damping ratio" means a ratio determined by dividing the actual damping ratio coefficient of a system by the critical damping coefficient of the system." As FCX and its experts candidly admit, using this term as an attribute of a damper in isolation *makes no sense*. Nonetheless, FCX chose this language to describe the damper component in its patent claims. This fundamental flaw in FCX's chosen claim language—and the consequences it has on the '782 Patent's validity under 35 U.S.C. § 112(b)—is discussed in detail below.

B. The '782 Patent's Prosecution History

On June 17, 2019, FCX filed the patent application that would later issue as the '782 Patent, U.S. Patent Application No. 16/443,535 ("the '535 Application"). Claim 1 of the '535 Application, as originally presented to the PTO, did *not* recite the specific two-ports-and-a-valve damper design identified in the specification, and instead focused solely on the damper functionality. *See* Ex. 4 at 119.

During prosecution, the Examiner repeatedly rejected FCX's claims as unpatentable over the prior art (under 35 U.S.C. §§ 102 or 103) or unpatentable for broadly covering subject matter that lacked adequate "written description" under 35 U.S.C. § 112(a)—i.e., subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the patent application was filed. As described below, only after FCX narrowed its claims to focus on the two-ports-and-a-valve damper design did the Examiner relent, and issue the '782 Patent.

1. FCX overcame the Examiner's rejections only by adding claim limitations directed to the damper piston's two-ports-and-a-valve arrangement.

The Examiner initially rejected the claims of the '535 Application as obvious to a person of ordinary skill in the art under 35 U.S.C. § 103 in light of the prior art. Ex. 4 at 93–98. In response, FCX amended claim 1 by adding additional limitations relating to the functionality of the dampers. Specifically, FCX added limitations that tied the first damping ratio to a "non-wind event" and the second damping ratio to a "wind event." *Id*. at 86. But the Examiner rejected these new limitations for failing to overcome the prior art. *Id*. at 58–65.

FCX responded by dropping the limitations directed to the "non-wind event" and "wind event," and instead adding new limitations directed to the two-ports-and-a-valve damper design described in the specification:

1. (Currently Amended) A photovoltaic system, comprising:
a collection of photovoltaic modules;
a base supporting the collection of photovoltaic modules; and
a damper coupled between the collection of photovoltaic modules and the base and resisting movement of the photovoltaic modules relative to the base, the damper having a first damping ratio when the collection of photovoltaic modules moves at a first rate relative to the base and a second damping ratio when the collection of photovoltaic modules moves at a second rate relative to the base, wherein the damper passively transitions from the first damping ratio to the second damping ratio;
the second damping ratio being greater than the first damping ratio; and
the damper comprising:
a damper chamber containing a fluid; and
a damper piston movable through the fluid inside the damper chamber, the damper piston including:
a first port;
a second port; and
a valve, configured to passively open or close the second port ~~corresponding to damping during a period of time when environmental loads correspond to a non-wind event;~~
~~the second damping ratio corresponding to damping during a period of time when environmental loads are typical of a wind event~~.

Id. at 39. FCX added these two-ports-and-a-valve limitations to all of the independent claims that were pending (claims 1, 12, 21, and 22). *Id.* at 39, 41, 42–43. FCX specifically identified Figures 2A–2C as the basis supporting these amendments. *Id*. at 46.

FCX argued that these new limitations distinguished the pending claims over the prior art, relying specifically on the two-ports-and-a-valve damper design limitations: "Patterson [a prior art reference that the Examiner had identified] does not teach a damper having two ports and a valve that passively moves to cover one of the ports." *Id*. at 47–49.

The Examiner accepted these arguments, agreeing that the two-ports-and-a-valve damper design limitations distinguished the claimed subject matter from the prior art. *Id*. at 32 (noting the "103 rejections were overcome by amendment"). The Examiner, however, still concluded that the claims were unpatentable for lacking sufficient written description of the functional valve limitation under § 112. *Id*. at 34–35.

2. FCX overcame the Examiner's written-description rejection by relying solely on the specific two-ports-and-a-valve damper piston design depicted in Figure 2.

In a June 24, 2020 Office Action, the Examiner rejected FCX's pending claims for failure to comply with the written-description requirement of 35 U.S.C. § 112(a). *Id*. The Examiner

specifically questioned FCX's support for the functional language used to describe operation of the valve in closing the second port. *Id*.

In response, FCX filed a paper providing a detailed explanation as to how the specification defines the valve that is "*configured to passively open or close the second port*." *Id*. at 26–28. First, FCX argued that "[t]he valve opens and closes due to the movement of the piston and/or the fluid within the damper chamber," and it does so passively because it is "not opening or closing in response to an instruction from a controller":

> **Valve passively opening or closing**
>
> The Specification discloses a valve within the damper that passively opens and closes. The specific claim teaching is a "damper comprising…a valve, configured to passively open or close the second port." The movement of the valve is passive because a controller does not instruct the valve to open and close. The valve opens and closes due to the movement of the piston and/or the fluid within the damper chamber. The piston/fluid moves because of forces that are acting externally on the photovoltaic cells. Therefore, the valve is opening or closing passively because is it not opening or closing in response to an instruction from a controller.

Id. at 26 (highlighting added).

Second, FCX defined the claim term "passively transition" (in the context of "the damper *passively transitions* from the first damping ratio to the second damping ratio") in a similar way, requiring the valve to passively open or close without an instruction from a controller:

> Passively transition
>
> Looking within the Specification to determine what it means to "passively transition" we find that to passively transition is for the transition to not be the result of active control by the controller. See paragraph [0016]. "The damping ratio of the damper can change **passively** based on the operating state of the actuator such as the actuation rate. The damping ratio may therefore be adjusted without active control by…the controller." See paragraph [0016]. Therefore, for the valve to passively open and close, the valve must open or close "without active control by…the controller."

Id. at 27 (highlighting added).

Third, FCX included a separate section explaining the "Function of the valve." *Id.* at 27. FCX defined the valve's structure as that "depicted in Figures 2A, 2B, and 2C." *Id.* FCX used

this structure to explain the valve's functionality of "passively opening or closing the second port." FCX made clear that the valve closes only one of the ports. *Id.* ("*One of the ports* . . . is controlled by a valve."). Then FCX explained to the PTO how the valve passively closes depending on the speed of the damper piston. When the damper piston moves at lower speeds (i.e., during normal operation), the valve is open, whereas "[a]t higher speeds, the valve is pushed closed" because of "the action of the damper piston[,] not because of an instruction from the controller":

> Function of the valve
>
> The structure of the damper as depicted in Figures 2A, 2B, and 2C includes two ports. See paragraph [0018]. One of the ports, in the embodiment described is larger in diameter and is controlled by a valve. See paragraph [0019]. The damper also includes a damper piston. See paragraph [0018]. The damper piston moves at lower speeds when the PV modules are rotated at a lower speed and the damper piston moves at higher speeds when the PV modules are rotated at a higher speed such as under wind loading. See paragraphs [0015] and [0019]. When the damper piston moves at a lower speed the valve is open. See paragraph [0019]. "At higher speeds, the valve is pushed closed." See paragraph [0019]. The valve is pushed closed because of the action of the damper piston not because of an instruction from the controller. See paragraph [0019].

Id. (highlighting added).

And fourth, FCX reiterated that the passive transitioning between the first and second damping ratios occurs "when the valve opens and closes," and the valve is "closed passively because it is pushed close[d] by the higher speed of the damper piston[,]" "not subject to active control by the controller."

> The valve is closed passively
>
> As discussed above, the damper functions passively when it is "adjusted without active control…by a controller." See paragraph [0016]. The damper switches between providing a higher damping ratio and a lower damping ratio passively. See Abstract. The damper switches between the higher damping ratio and the lower damping ratio by when the valve opens and closes. See paragraph [0019]. The valve is closed passively because it is pushed close by the higher speed of the damper piston. See paragraph [0019]. The valve is not subject to active control by the controller. Therefore, the valve is opened and closed passively. Applicant respectfully requests removal of the rejection and allowance of the claims.

Id. at 27–28 (highlighting added).

Based on these representations, the Examiner allowed the claims, finding that "the 112(a) rejections are overcome by argument." *Id*. at 10. The '782 Patent issued on January 26, 2021. *Id.* at 1.

III. LEGAL STANDARDS

A. The Law of Claim Construction

Claim construction is a question of law for the Court to determine the scope of patent claims, which are the "portion of the patent document that defines the scope of the patentee's rights." *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 321 (2015) (citing *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996)). The goal of claim construction is to "capture the scope of the actual invention." *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011). The Court must not "allow the claim language to become divorced from what the specification conveys is the invention." *Id.* Instead the Court's construction should "tether the claims to what the specification[] indicate[s] the inventor actually invented." *Id.*

The words of a claim are generally given their ordinary and customary meaning, which is "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention . . . ." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (citations omitted). In determining the ordinary and customary meaning, the Court must look first to the patent's intrinsic evidence: the claim language, the specification, and the prosecution history. *Id.* at 1313–17. If the proper construction of a term remains unclear, the Court may look to any relevant extrinsic evidence, including dictionaries, treatises, and expert testimony. *Phillips*, 415 F.3d at 1317–18.

Notwithstanding, there are many ways a patentee can demonstrate intent to deviate from the ordinary and customary meaning of a claim term. The patentee may include in the specification

"words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." *Id.* at 1319 (citation omitted). Courts do not require explicit redefinition or disavowal for a patentee to redefine a term. *See, e.g.*, *Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1330 (Fed. Cir. 2012) ("This clear expression need not be in *haec verba* but may be inferred from clear limiting descriptions of the invention in the specification or prosecution history."). Rather, "[e]ven when guidance is not provided in explicit definitional format, the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents." *Phillips*, 415 F.3d at 1320–21 (quoting *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1300 (Fed. Cir. 2004)).

1. Indefiniteness

A patent claim must "inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc*., 572 U.S. 898, 910–11 (2014). If the language of a claim fails this test, the claim is invalid under 35 U.S.C. § 112(b). *See One-E-Way, Inc. v. Int'l Trade Comm'n,* 859 F.3d 1059, 1063 (Fed. Cir. 2017) (citations omitted).

It is not enough to simply identify "some standard for measuring the scope of the phrase." *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1370–71 (Fed. Cir. 2014). Rather, the claims must identify objective boundaries to a skilled artisan. *Id.* at 1371. As explained by the Federal Circuit, "a patent must be precise enough to afford clear notice of what is claimed, thereby appris[ing] the public of what is still open to them." *Teva Pharms. USA, Inc. v. Sandoz, Inc*., 789 F.3d 1335, 1341 (Fed. Cir. 2015) (citing *Nautilus*, 572 U.S. at 909). Therefore, a claim may be indefinite if the patent does not convey with reasonable certainty how to measure a claimed feature. *See id.* at 1344–45. And likewise, "the existence of multiple methods leading to different results without guidance in the patent or the prosecution history as to which method should be used

renders the claims indefinite[,]" where a person of skill in the art would not know which test to select. *Dow Chem. Co. v. Nova Chems. Corp. (Canada)*, 803 F.3d 620, 634–35 (Fed. Cir. 2015).

While indefiniteness is an issue of law, the inquiry often involves underlying factual questions, which "may turn on evaluations of expert testimony." *Nautilus*, 572 U.S at 911.

2. Means-plus-function claiming

A patent applicant may express "[a]n element in a claim" as "a means or step for performing a specified function without the recital of structure." 35 U.S.C. § 112(f). These types of functional claim elements define the patented invention by what the element *does*—rather than what the element *is*. This is known as "means-plus-function" claiming, and claims written in this format are limited to the structure disclosed in the specification that performs the claimed function and equivalents thereof. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347 (Fed. Cir. 2015) (en banc) (citation omitted). "This statutory provision was meant to preclude the overbreadth inherent in open-ended functional claims[.]" *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1256 n.7 (Fed. Cir. 2008).

B. Person of Ordinary Skill in the Art

FCX proposes that a person of ordinary skill in the art ("POSITA") in the field of the '782 Patent would have had an undergraduate degree in mechanical engineering, physics, or a similar discipline, and at least three to five years of work experience designing, analyzing, or evaluating solar trackers, or the equivalent experience. *See* FCX's Opening Brief, Dkt. No. 71 ("FCX Br.") at 5. FTC largely agrees with FCX's proposed POSITA standard.[3] Only one of FCX's two experts, however, appears to meet this standard. Notably, FCX's expert Dr. Ahmadian does not

[3] FCX's proposed definition of the level of ordinary skill in the art includes the vague language "or the equivalent experience." It is unclear what type of experience would fall within the scope of this standard. Therefore, FTC does not endorse this portion of FCX's proposed definition.

meet this standard.[4] Therefore, Dr. Ahmadian's Declaration provides no assistance to the Court in determining what the asserted claim language means to a POSITA.

IV. AGREED-UPON CLAIM TERM

The parties have agreed that "damping ratio" should be construed to mean "a ratio determined by dividing the actual damping coefficient *of a system* by the critical damping coefficient *of the system*." Therefore, there is no dispute that a "damping ratio" is a *system-wide* characteristic that can only be determined if all of the various elements of the photovoltaic system are known. As discussed below, the disagreement between the parties that the Court must resolve relates to the meaning of certain claim terms in which FCX chose to use the term "damping ratio" to describe the *damper*—a single element of the overall photovoltaic system.

V. DISPUTED CLAIM TERMS

A. "the damper having a first damping ratio" and "the damper having … a second damping ratio" ('782 Patent claims 1, 11,[5] 19)[6]

FTC SOLAR'S PROPOSED CONSTRUCTION	FCX SOLAR'S PROPOSED CONSTRUCTION
Indefinite.	These terms are not indefinite and should be accorded their plain and ordinary meaning.

The parties agree that a "damping ratio" is a *system-wide* parameter. Therefore, using this term to define the characteristic of a single component of the system (the damper)—as FCX chose

[4] *See* Ex. 6 (Ahmadian Dep. Tr.) at 17:6–10 ("Q: [. . .]. But is it a fair description to say you've never designed, analyzed or evaluated a solar tracker at any point in your career? A. That is a fair assumption."), 24:4–7 ("Q: [. . . .] Before this assignment in this case, were you generally familiar with solar trackers? A: No."); Ex. 7 (Hall Dep. Tr.) at 61:21-23 ("[. . .] I would say [Dr. Ahmadian] does not meet the criteria of a person of ordinary skill in the field of invention.").

[5] As FCX notes in its brief, FTC omitted claim 11 from its list of challenged claims that have the term "the damper having . . . a second damping ratio." *See* FCX Br. at 11 n.3. This was an inadvertent omission; the term is used in claim 11 the same way it is used in claims 1 and 19, so the same indefiniteness analysis applies to claim 11.

[6] The indefiniteness problem relating to the use of "damping ratio" in the claims impacts additional disputed claim terms, including the following: (1) "wherein the damper passively transitions from the first damping ratio to the second damping ratio " ('782 Patent at claims 1, 19) and (2) "the damper … passively transitioning to a second damping ratio" ('782 Patent at claim 11). These claim terms are indefinite for the same reasons as discussed in this section.

to do in the '782 Patent—*makes no sense*. FCX and its experts concede this point. *See* Ahmadian Decl. (Dkt. No. 72) ¶42 ("[R]eferring to a 'damping ratio' as a property of a damper in isolation outside any system . . . *would make no sense*.") (emphasis added); Hall Decl. (Dkt. No. 73) ¶46 (same); FCX Br. at 13 (same).

Recognizing this problem, FCX now requests the Court to rewrite the claim language that FCX deliberately selected to describe its alleged invention. FCX's request should be denied for two fundamental reasons: (1) the Court cannot rewrite FCX's patent claims, even to avoid a nonsensical result; and (2) even if adopted, FCX's proposed rewrite injects substantial uncertainty into the claims, such that they remain indefinite.

1. The Court may not rewrite the claim language, as FCX proposes.

The plain and ordinary meaning of "having" is "possessing." *See* Dkt. No. 74-5 (FCX's Decl. of G. Lee, Ex. 11) at 40. This is how the '782 Patent consistently uses the term "having." *See* Ex. 1 at claim 20 ("a first port *having* a first diameter; . . . a second port *having* a second diameter[.]"). Therefore, under the plain and ordinary meaning of "damping ratio" (as agreed by the parties) and "having," this claim term is indefinite.

To avoid this result, FCX asks the Court to adopt an alleged "colloquial" understanding of "having." Specifically, FCX asks the Court to construe the claim term "damper *having a* . . . damping ratio" to mean "damper *providing the photovoltaic system with* [damping ratios]." *See* FCX Br. at 12; Ahmadian Decl. ¶38 ("[T]his is just common colloquial usage"). Patent claims, however, require clarity. If FCX intended for the damper to "provide a damping ratio to the photovoltaic system," it could have easily used that language in its claims. Alternatively, FCX could have defined the functionality of the damper using the resistance force imparted by the damper at different conditions. *See* Ex. 1 at 4:2–15 (describing the damper's fluid flow as providing low resistance at low speeds and high resistance at higher speeds). Even the examples

from the specification identified by FCX use alternative language that FCX could have employed in its claims. *See* FCX Br. at 13 (discussing the "*effective* damping ratio" and that a damper may "passively *regulate the damping ratio*" (citing '782 Patent at 4:12–15, 20–30) (emphasis added)).

With its proposed construction, FCX asks the Court to save it from the nonsensical result flowing from the plain meaning of the claim language that FCX intentionally chose. The Federal Circuit, however, has "repeatedly and consistently [] recognized that courts may not redraft claims, whether to make them operable or to sustain their validity." *Chef Am., Inc. v. Lamb-Weston, Inc*., 358 F.3d 1371, 1374 (Fed. Cir. 2004). "Even 'a non-sensical result does not require the court to redraft the claims of the [asserted] patent.'" *Id.* (citation omitted).[7] For this reason, FCX's proposed construction should be rejected.

2. Even under FCX's proposed construction, the claims are indefinite.

FCX's proposed construction does not save the claim from indefiniteness. Even if "damper *having a* . . . damping ratio" is construed to mean "damper *providing the photovoltaic system with* [damping ratios]," the claim still suffers the same fate under § 112(b).

The terms "first damping ratio" and "second damping ratio" are indefinite because the '782 Patent's claims and specification fail to provide any guidance about how to test and calculate them. As FTC's expert, Dr. Daniel S. Codd, explains in his Declaration, a system's damping ratio depends on a multitude of parameters, including mass (*e.g.*, the number of photovoltaic panels, the structure's details and size, the orientation of the panels, and the actuator's mass and inertia), friction, and stiffness (e.g., the flexibility of the frame and photovoltaic-panel assembly, and

[7] The Federal Circuit affirmed the district court's adamant refusal to entertain a request similar to FCX's: "Plaintiff's patent could have easily been written to reflect the construction plaintiff attempts to give it today. It is the job of the patentee, and not the court, to write patents carefully and consistently. The court cannot rewrite the patent, and accordingly I grant defendant's motion for partial summary judgment." *Id*. at 1373.

compliance in the actuator, gears, linkages, bearings, etc.). *See* Decl. of Daniel S. Codd, Ph.D. ("Codd Decl.") ¶46. None of these variables are addressed in the '782 Patent.

A POSITA would not know whether any change in damping ratio experienced at the system level was provided by the damper passively transitioning from one damping ratio to another, or from a change in some other, unidentified variable. *Id.* ¶47. Therefore, a POSITA—lacking guidance as to, for example, the mass and stiffness of a system to be used when assessing a potential embodiment of the claims, or the temperature at which the testing should occur—would not be able to confidently determine whether a specific system falls inside the claims' scope. *Id.* ¶48. As a result, the claim terms "fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus*, 572 U.S. at 901.

A claim is indefinite if different approaches to measurement can lead to different results and the intrinsic record fails to specify which approach should be used. *See, e.g.*, *Dow*, 803 F.3d at 633–35. In *Dow*, the Federal Circuit found indefinite claims from two patents that required a "slope of strain hardening coefficient" greater than or equal to a threshold. *Id.* at 623–24. The patents' specifications explained that the "slope of strain hardening coefficient" was a function of a different quantity: the "slope of strain hardening." *Id.* at 631. But although the patents explained that the "slope of strain hardening" could be determined from a "stress/strain curve," the patents failed to provide that curve. *Id.* at 633. Moreover, it was undisputed that there were different ways of calculating the "slope of strain hardening" that would produce different results. *Id.* The Court noted that because of this, "the method chosen for calculating the slope of strain hardening could affect whether or not a given product infringes the claims." *Id.* at 634.

Here, a solar-tracker system's "first damping ratio" and "second damping ratio" measured in any given test may vary based on how the test is designed. There are many variables and

considerations that go into designing a system-level damping-ratio test, including the system's mass, friction, and stiffness. But neither the claims nor specification in the '782 Patent provides any guidance about these variables in order to determine a system's "first damping ratio" and "second damping ratio." Codd Decl. ¶48. Nor would a POSITA otherwise know how to measure it under any kind of industry standard. *Id.* This is especially true in light of FCX's assertion that a POSITA would have to enlist a damper expert to understand "how [dampers] work" at all. *See* FCX Br. at 5–6.

As a result, one system designer could prepare a set of test conditions and measurement protocols and determine that a system meets the claimed "first damping ratio" and "second damping ratio" limitations, while another system designer could prepare a different set of test conditions and measurement protocols and determine that the same system does not. Dr. Codd provides an example of this in his Declaration. *See* Codd Decl. ¶49.

As Dr. Codd explains, whether a system meets these claim elements is left to the subjective choice of the system designer in preparing test conditions and methodologies. *Id.* FCX's experts confirmed this in their depositions:

> Q: But two different engineers using two different methods could get two different answers for damping ratio, right?
>
> A: Two different people running two different codes making different assumptions might come up with different answers. One of the answers is correct—sorry. Actually, both of them may be incorrect. But there is a correct answer. I think that's what you're saying is two different people, maybe one person, another person, different quality calculations, different amount of investigation, come up with different answers. I think that's what you're asking.
>
> Q: That's right.
>
> A: Not wanting to paraphrase for you, but yes. [. . . .]
>
> Q: [. . . .] [I]s there anything in the patent that would guide an engineer to determine the damping ratio correctly?

A: No.

Ex. 7 at 158:1–159:9; *see also* Ex. 6 at 46:9–21 ("Q: So my question is how do you [determine] the actual damping coefficient of a system in a solar tracker? [. . .] A: Well, it all depends on the person doing the test. . . ."). Therefore, this case presents "the existence of multiple methods leading to different results without guidance in the patent or the prosecution history as to which method should be used"—a predicament that renders the claims indefinite.[8]

FCX acknowledges the existence of non-damper variables in one paragraph of Dr. Hall's Declaration but quickly—and incorrectly—dismisses them.[9] Dr. Hall mentions that "there will be almost no damping [in a single-axis solar tracker] other than that attributable to the damper" because a solar tracker's "bearings and other components are low-friction[.]" Hall Decl. ¶47. But Dr. Hall provides no support for his conclusion. Dr. Hall does not explain how a POSITA could evaluate the non-damper effects on damping, much less establish (or even assert) that there is a standard set of conditions employed in this industry for this purpose. Nor has Dr. Hall ever personally conducted such testing.[10] As Dr. Codd explains, variables such as friction and stiffness will impact the "damping ratio" measurements by contributing to inherent damping. Codd Decl. ¶¶46, 50. This effect is expressly noted in the FTC webinar slides that Dr. Hall cites. *See* Hall

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[8] *Dow*, 803 F.3d at 634; *see also Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, No. 15-cv-1168-LPS, 2017 WL 1334733, at *7 & n.15 (D. Del. Apr. 7, 2017) (holding claims indefinite because "the record supports a finding that conditions such as temperature will impact properties such as damping or vibrational frequencies … and whether the claims are satisfied depends (in part) on such properties, yet the patent is silent as to such testing conditions (e.g., at which temperature to test), it follows that a [POSITA] would lack reasonable certainty as to the scope of the invention.") (citing *Dow*, 803 F.3d at 634).

[9] FCX's experts reluctantly admitted during deposition that the numerous non-damper variables will, in fact, affect the damping ratio measurements. Ex. 6 at 46:1–52:1, 52:16–58:1; Ex. 7 at 123:15–124:6.

[10] *See, e.g.*, Ex. 7 at 116:15–22 ("Q: [Y]ou yourself have not personally isolated damping attributable to a damper versus damping attributable to these other variables, correct? A: That's correct."), 117:12–17 (admitting that he has never measured inherent damping in a solar-tracker system), 119:13–14 (admitting that he has never measured friction in a solar-tracker system); 120:14–19 (Q: Have you ever measured bearing play in a solar tracking system? […] A: Once again, I have not done it myself.").

Decl., Attachment C (Dkt. 73-1) at 9 (describing "complex mechanical behaviors . . . backlash . . . load dependent structural damping"). Dr. Hall errs by simply ignoring these variables.

The '782 Patent fails to provide sufficient guidance to a POSITA to determine the damping ratio of a system, much less to determine whether the damper is providing different damping ratios to the system under different conditions. Further exacerbating the problem is the fact that the claim language provides no guidance as to the conditions that trigger the transition between damping ratios. Must the system passively transition between damping ratios as a result of *any* change in velocity? If not, then how big of a difference in velocity can a system encounter *without* a change in damping ratio and still fall outside the scope of the claims? And if a person builds and uses a tracker system, but the conditions are such that the damping ratio never undergoes a transition (even though it could at extreme conditions), has infringement occurred? The '782 Patent answers none of these questions. Therefore, even if the Court accepts FCX's invitation to rewrite the claims, the claims would be invalid as indefinite.

B. "a valve, configured to passively open or close the second port" ('782 Patent claims 1, 11, 19)

FTC SOLAR'S PROPOSED CONSTRUCTION	FCX SOLAR'S PROPOSED CONSTRUCTION
This element should be construed as a means-plus-function claim term under 35 U.S.C. § 112(f). Function: selectively close the second port due to the piston moving at a higher speed, without instructions from a controller Corresponding structure: valve 220, as depicted in Figures 2B and 2C and described at 3:66–4:19. Alternatively: a valve that selectively closes the second port due to the piston moving at a higher speed, without instructions from a controller	This term should not be construed under 35 U.S.C. § 112(f) because "valve" connotes sufficient structure to one of ordinary skill in the art. "Valve" has a plain and ordinary meaning and does not require construction. This term should be accorded its plain and ordinary meaning, which is "a valve that opens or closes the second port in response to a change in pressure or flow of fluid."

1. This element should be construed as a means-plus-function claim term under 35 U.S.C. § 112(f) because it recites function without reciting sufficient structure for performing that function.

As explained above in Section II.B.1, FCX was able to convince the PTO to issue the '782 Patent only by adding specific limitations relating to the two-ports-and-a-valve damper design. This added language included the following functional limitation: "a valve, *configured to passively open or close the second port*." Ex. 4 at 39. There is no serious dispute that this language is functional: it defines the valve "by what it does rather than what it is." *Halliburton Energy*, 514 F.3d at 1255 (quoting *In re Swinehart*, 439 F.2d 210, 212 (C.C.P.A. 1971)).

Courts have long recognized the "dangers of using only functional claim limitations to distinguish the claimed invention from the prior art." *Id.* at 1255. The Supreme Court long ago noted that the "vice of functional claiming occurs 'when the inventor is painstaking when he recites what has already been seen, and then uses conveniently functional language at the exact point of novelty.'" *Id.* (quoting *General Elec. Co. v. Wabash Appliance Corp*., 304 U.S. 364, 371 (1938)). Although Patentees are allowed to define their inventions using functional language—including as expressly authorized under 35 U.S.C. § 112(f)—the concerns identified by the Supreme Court remain valid. In fact, it was the Federal Circuit's concern in 2015 about the "proliferation of functional claiming" that motivated it to loosen its standard for when courts should apply a means-plus-function analysis. *Williamson*, 792 F.3d at 1349.

FCX's functional valve limitation is properly considered a "means-plus-function" limitation under § 112(f). Under *Williamson*, the presumption that claim language lacking the word "means" is not a means-plus-function term is overcome if the claim term "recites function without reciting sufficient structure for performing that function." *Id.* (quotations omitted).[11]

[11] Rebutting this presumption does not require a showing that the limitation is "devoid of anything that can be construed as structure." *Williamson*, 792 F.3d at 1349.

Here, the asserted claims consistently describe the "valve" in primarily functional language: "a valve, *configured to passively open or close the second port*." The phrase "configured to" makes clear that some special structural configuration must be provided for it to perform the claimed function. The phrase "configured to" indicates functional language.[12]

The function recited in the claims is very specific: the valve must control the *second* of two ports in the damper piston and do so *passively*. FCX takes issue with FTC's identification of the claimed function. FCX Br. at 18–19. But the function included in FTC's proposed construction tracks the claim language. Functional language is not exempt from claim construction. FTC's proposal simply clarifies what the claim language means by "*passively* open and close *the second port*." This additional detail is commensurate with FCX's detailed description of the alleged invention provided to the PTO to overcome the written description rejection. As discussed above, in a section titled "Function of the valve," FCX made specific representations to the PTO as to how the valve for the damper depicted in Figures 2A, 2B, and 2C functions: (1) it controls "one of the ports," (2) it is open at lower speeds and "[a]t higher speeds, the valve is pushed closed," and (3) is not closed "because of an instruction from the controller." Ex. 4 at 26–28. FTC's proposed construction best captures the claimed function.

The generic recitation of "valve" fails to recite sufficient structure for performing the specialized function identified in the claims. FCX argues that "[a] valve is a fundamental and common device that regulates the flow of fluid." FCX Br. at 16 (citing Ahmadian Decl. ¶45, which

[12] *See, e.g.*, *MTD Prods. Inc. v. Iancu*, 933 F.3d 1336, 1343 (Fed. Cir. 2019) (construing "a mechanical control assembly … configured to actuate …" as means-plus-function; "[C]laim language reciting what [a claimed element] is 'configured to' do is functional."); *Diebold Nixdorf, Inc. v. Int'l Trade Comm'n*, 899 F.3d 1291, 1297–98 (Fed. Cir. 2018) (construing a claim reciting a cheque standby unit "configured to" hold a check as means-plus-function); *Magnolia Med. Techs., Inc. v. Kurin, Inc*., No. 19-97-CFC-CJB, 2020 WL 2559795, at *3–4 (D. Del. May 20, 2020) (construing diverter "configured to" divert flow as means-plus-function); *Verint Sys. Inc. v. Red Box Recorders Ltd*., 166 F. Supp. 3d 364, 384 (S.D.N.Y. 2016) (construing "analysis module configured to . . . receive an identifier tagged onto the data packets" as means-plus-function).

refers to a voluminous valve handbook and provides a long list of exemplary valves, including "globe, gate, needle, plug, butterfly, poppet, shim, and spool valves"). While that may be true, FCX misses the point. The claimed function does not simply require the regulation of fluid flow—it requires the valve to passively control the second of two ports in a hydraulic damper piston. FCX has provided no evidence that its laundry list of generic valves will perform *this* function. Because the generic recitation of "valve" in the claim does not recite sufficient structure for performing this specific function, the Court should apply a means-plus-function analysis in construing this functional claim language. *Williamson*, 792 F.3d at 1349.

The U.S. District Court for the District of Delaware recently reached a similar conclusion, construing two terms directed to a "diverter configured to" perform a function as means-plus-function claims. *Magnolia Med. Techs., Inc. v. Kurin, Inc.*, No. 19-97-CFC-CJB, 2020 WL 2559795, at *3–4 (D. Del. May 20, 2020). Although neither term used the term "means," the presumption against applying § 112(f) was rebutted because the claims did "not recite structure sufficient to perform that function." *Id.* at *3. The claim recited some structure for the "diverter"—a inlet, a first outlet, and a second outlet—but these were "insufficient to perform the diverting function expressed in the claim limitations." *Id.* Therefore, the court concluded that "the claim language does not disclose a structure that could accomplish the diversion of a fluid's flow from one path to another path" *Id.* The same is true here: even though the claims disclose some structure, it fails to disclose sufficient structure to perform the specific function of *passively* opening or closing *the second port*.

FCX relies heavily on *Greenberg*, a case decided nineteen years before the Federal Circuit's en banc decision in *Williamson.* In *Greenberg*, the court held that "detent" (and its equivalent "detent mechanism") was a term that, based on three dictionary definitions, had a

generally understood meaning in the mechanical arts. *Greenberg v. Ethicon Endo-Surgery*, 91 F.3d 1580, 1583 (Fed. Cir. 1996). But here, unlike in *Greenberg*,[13] the generic structure connoted by the term "valve" is not sufficient to perform the claimed function.

FCX cites to various inapposite cases involving the term "valve." *See* FCX Br. at 16–17. None of these cases support FCX's argument. Those courts either adopted plaintiff's alternative construction for "valve" and not its plain and ordinary meaning,[14] construed "valve[s]" in accordance with a plain and ordinary meaning that the parties agreed to during the *Markman* hearing,[15] construed an entire claim limitation where the term "valve" was not directly at issue,[16] or afforded "valve" an ordinary meaning because the claim language sufficiently "provide[d] many [] structural limitations related to the claimed 'valve.'"[17] FCX also relies on *Baker Hughes Oilfield Operations, Inc. v. Production Tool Solutions, Inc.*, No. 1:17-cv-291-LY, 2020 WL 1916691 (W.D. Tex. Apr. 17, 2020). But in *Baker Hughes*, both parties' experts had "agree[d] that the phrase 'shunt valve' alone connotes definite structure to a [POSITA]." *Id.* at *7. None of these cases involved the situation before the Court, where the generic recitation of "valve" fails to connote sufficient structure to perform the specific claimed function.

Under § 112(f), the claims "shall be construed to cover the corresponding structure . . . described in the specification and equivalents thereof." The only structure disclosed in the

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[13] *Greenberg* was also decided under an incorrect standard that the Federal Circuit later described in *Williamson* as "placing a thumb on what should otherwise be a balanced analytical scale" in favor of finding that patentees did not invoke § 112(f) means-plus-function claiming. *See Williamson*, 792 F.3d at 1349.

[14] *Becton, Dickinson & Co. v. Neumodx Molecular, Inc.*, No. 19-cv-1126-LPS, 2021 WL 1854650, at *6 (D. Del. May 10, 2021).

[15] Claim Construction Order at 13, *True Chem. Sols., LLC v. Performance Chem. Co.*, No. 7:18-cv-00078-ADA (W.D. Tex. Sept. 25, 2019).

[16] *Rothschild Connected Devices Innovations, LLC v. Coca-Cola Co.*, No. 1:16-cv-1241, 2017 WL 5410867, at *7–8 (N.D. Ga. Nov. 13, 2017), *vacated on other grounds*, 813 F. App'x 557 (Fed. Cir. 2020).

[17] *Luv N' Care, Ltd. v. Koninklijke Philips Elecs. N.V.*, No. 11-cv-512-RSP, 2013 WL 3471269, at *11 (E.D. Tex. July 9, 2013).

specification for performing the claimed function is in relation to Figures 2B and 2C. Ex. 1 at 3:66–4:19. Thus, the scope of this term is properly limited to that corresponding structure.

2. FTC's alternative construction correctly tethers the claims to what the intrinsic evidence indicates the inventors actually invented.

If the Court decides not to construe this limitation under § 112(f), then the Court should construe it to mean "a valve that selectively closes the second port due to the piston moving at a higher speed, without instructions from a controller." This proposed construction is entirely consistent with the claim language and aligns with FCX's description of its claimed invention made to the PTO. As discussed above, FCX's detailed explanation left no room for doubt: (1) "One of the ports" is controlled by the valve;[18] and (2) "At higher speeds, the valve is pushed closed" without "an instruction from the controller." Ex. 4 at 27.

These prosecution history statements—intrinsic evidence that FCX ignores—are critical evidence bearing on the proper claim construction. *See Springs Window Fashions LP v. Novo Indus., L.P.*, 323 F.3d 989, 995 (Fed. Cir. 2003) (holding patentee "to the restrictive claim construction that was argued during prosecution"); *Genentech, Inc. v. Iancu*, 809 F. App'x 781, 785 (Fed. Cir. 2020) (aligning claim construction with applicant's "choice" of claim meaning during prosecution in overcoming rejection). And even if the Court finds that these statements do not rise to the level of a clear and unmistakable disavowal, they nonetheless strongly support FTC's proposed construction. *See Fenner Invs., Ltd. v. Cellco P'ship*, 778 F.3d 1320, 1323 (Fed. Cir. 2015) ("Any explanation, elaboration, or qualification presented by the inventor during patent

[18] FCX's proposed construction omits the important modifying language "selectively" that FTC included in its proposed construction. Under FCX's overly broad proposed construction, a valve that closes *both the first and second ports* would be covered. Such a configuration would fall outside of the scope of the invention described in the specification and would not be consistent with the detailed explanation that FCX provided to the PTO.

examination is relevant, for the role of claim construction is to 'capture the scope of the actual invention' that is disclosed, described, and patented.").

Rather than grapple with the statements it made to the PTO, FCX attacks a straw man. FCX faults FTC's proposed construction as being "limited to the *closing* of the second port when the claim language refer to *opening or closing* the second port[.]" *See* FCX Br. at 19. But this is not a real dispute; FTC would agree to a construction of a "valve" that "selectively closes the second port due to the piston moving at a higher speed, without instructions from a controller, *or selectively opens the second port due to the piston moving at a lower speed, without instructions from a controller.*" The disputed issue here is not whether the valve both opens and closes. Instead, the actual dispute relates to how and why the valve opens and closes and whether the scope of this claim language should extend beyond what FCX identified as its invention.

FCX's attacks on FTC's proposed construction lack merit. First, FCX argues that referencing the piston's speed improperly limits the claim to a specific embodiment. But the intrinsic record shows that the scope of the claims that the Examiner ultimately allowed extends no further than this embodiment. *See, e.g.*, Ex. 4 at 27 ("The valve is closed passively because it is pushed close[d] by the higher speed of the damper piston."); *Springs Window Fashions*, 323 F.3d at 995 (limiting a claim to what was argued during prosecution). Second, FCX criticizes the "without an instruction from a controller" portion of FTC's proposed construction as an improper negative limitation. This criticism rings hollow. FCX repeatedly utilized this "negative limitation" to explain its invention to the PTO. *See id.* at 26–27 (emphasizing that the valve closes without an instruction from the controller *six times*). Moreover, this "without an instruction from a controller" portion of FTC's proposed construction is supported by both of FCX's experts. *See* Ahmadian Decl. ¶59 ("without some external active influence or control"); Hall Decl. ¶51 (same).

Dr. Hall confirmed this in deposition: "Q: So when the damper passively transitions from the first to the second damping ratio, it is doing so without an instruction from a controller, right? A: Yes." Ex. 7 at 164:25–165:4.

C. "to move a designated angular distance relative to the base in a specified amount of time under specified wind loading" ('782 Patent claims 10, 17)

FTC SOLAR'S PROPOSED CONSTRUCTION	FCX SOLAR'S PROPOSED CONSTRUCTION
Indefinite.	This term is not indefinite and should be accorded its plain and ordinary meaning.

The '782 Patent does not provide sufficient guidance regarding the "designated angular distance," "specified amount of time," and "specified wind loading" requirements to inform a POSITA as to the scope of the invention with reasonable certainty. Codd Decl. ¶¶51–56.

First, for "designated angular distance," the specification fails to set forth objective boundaries for a POSITA to designate the angular distance the PV modules should be allowed to move, nor does it mention anything about how to designate angular distance at all. What is a "designated angular distance"? Is there a range? How would a POSITA measure it?

Second, for "specified amount of time," the specification does not provide any guidance as to how to specify the amount of time, nor what the specified range is. At most, the specification offers a handful of amount-of-time examples—"10 seconds, 30, seconds, or 120 seconds," *see* Ex. 1 at 5:13–16—and states that the time can be "calculated based on wind tunnel testing, and can be, for example, approximately equivalent to a response time of the PV system 100 under target environmental loads." *Id.* at 4:51–57. Are these "specified amounts of time"? Who specifies them, and how do they calculate them?

And third, for "specified wind loading," the '782 Patent's specification merely identifies different types of wind loads—each with its own different impact on the PV system—and different methodologies to determine such wind loads. But these different methodologies for determining

wind loads produce different results, *see* Codd Decl. ¶55, and the specification does not provide any guidance on which method should be used. *See, e.g.*, Ex. 1 at 4:48–50 (noting the average moments on the PV system under turbulent wind flow may be less than those average moments calculated based on the average wind speed to gust duration). What is a specified wind loading? Is there a range? Who specifies it, and what method should they use?

Claims 10 and 17 do not provide sufficient notice of what is claimed. This renders these terms indefinite. *See Dow*, 803 F.3d at 634; *Teva*, 789 F.3d at 1344–45.

D. "at least one of the photovoltaic modules, the base, or the actuator is designed to withstand an average value of moments applied to the photovoltaic system across a specified period of time" ('782 Patent claim 18)

FTC SOLAR'S PROPOSED CONSTRUCTION	FCX SOLAR'S PROPOSED CONSTRUCTION
Indefinite.	This term is not indefinite and should be accorded its plain and ordinary meaning.

Claim 18 is indefinite. First, this dependent claim appears to require that certain engineering calculations be used *during the design* of one or more of the components listed. But it is unclear how, if at all, this limits the structural components already required in independent claim 11. Regardless, the '782 Patent fails to apprise a POSITA with reasonable certainty as to the scope of the invention covered by claim 18. Codd Decl. ¶¶57–60.

First, calculating the "average value of moments" depends—at least in part—on which method is used to calculate the wind load, and these methods will produce different results. *See id.* ¶59 (citing Ex. 1 at 4:48–50). The specification also fails to instruct a POSITA as to which point or points, or axis or axes, or combinations thereof should be used for the calculations.

Second, what is the "specified period of time" required by the claim? 10 seconds? A year? The '782 Patent offers no guidance to a POSITA. These uncertainties render claim 18 indefinite. *See Dow*, 803 F.3d at 634; *Teva*, 789 F.3d at 1344–45.

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